

A NOVEL SILICON MICROMACHINED CRYOGENIC CAPACITIVE PRESSURE TRANSDUCER, P. M. Echternach, Inseob Hahn, and U. E. Israelsson, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109 - A novel cryogenic capacitive pressure transducer was developed using Silicon micromachining techniques. It employs a flexible Silicon membrane which is sealed to a helium sample chamber with an Iridium seal. A thin film capacitor plate is attached to the back side of the membrane. A second thin film capacitor plate is located a short distance away on a fixed block of Silicon. Pressure variations in the sample cell will flex the membrane thereby adjusting the relative capacitance of the circuit. The membrane can be easily fabricated to precise dimensions, allowing fine tuning of the spacing between the capacitor plates. This allows easy optimization of the sensitivity and dynamic range of the transducer.

1. CEC
- 2, Category 7: Instrumentation and Control
3. Echternach, P.M.
4. Jet Propulsion Laboratory, California Institute of Technology
5. Mail Stop 79-24
6. 4800 Oak Grove Drive
7. Pasadena, CA 91109
8. USA
- 9, (818) 393-2654
10. (818) 393-4878
11. pierre@squid.jpl.nasa.gov
12. Echternach, P. M.; Hahn, I.; Israelsson, U. E.
13. Keywords: pressure transducer, Silicon, micromachining
14. Oral Session